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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,257	05/30/2001	Isao Matsumoto	13041.13US01	7404

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EXAMINER
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DOVE, TRACY MAE

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 05/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/870,257

Applicant(s)

MATSUMOTO, ISAO

Examiner

Tracy Dove

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 11-21 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3,5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Election/Restrictions***

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-10, drawn to an electrode for a battery, classified in class 429, subclass 209.
- II. Claims 11-17, drawn to a process for producing an electrode for a battery, classified in class 29, subclass 623.1.
- III. Claims 18-21, drawn to a secondary battery, classified in class 429, subclass 163.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product may be made by another materially different process.

Inventions I and III are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the combination does not require a non-sintered electrode. The subcombination has separate utility such as the electrode may be used in a secondary battery having a battery case having a different thickness than that required by the combination.

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Inventions II and III are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product may be made by another materially different process.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group II is not required for Group I or Group III, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group III is not required for Group I, restriction for examination purposes as indicated is proper.

During a telephone conversation with Douglas Mueller on 4/25/03 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-10. Affirmation of this election must be made by applicant in replying to this Office action. Claims 11-21 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Information Disclosure Statement***

The information disclosure statements (IDS) submitted on 8/27/01 and 6/4/02 have been considered by the examiner.

***Specification***

The disclosure is objected to because of the following informalities: on page 11, line 12 and page 13, line 21 it is suggested that “(?)” be deleted.

Appropriate correction is required.

***Claim Objections***

Claims 1-10 are objected to because of the following informalities: it is suggested that the term “type” be deleted from the phrase “A non-sintered type thin electrode”. The addition of the word “type” to an otherwise definite expression extends the scope of the expression so as to render it indefinite. Ex parte Copenhaver, 109 USPQ 118 (Bd. App. 1955). See MPEP 2173.05(b). Appropriate correction is required.

In claim 1, lines 2 and 7 it is suggested that the term “is” be deleted.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites “wherein the said concave and convex parts are adjacent and closest to a convex part” and “wherein the said concave and convex parts are adjacent and closest to a

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concave part”, which is confusing and contradictory. It is unclear how the concave and convex parts are adjacent and closest to both a concave part and a convex part.

Claim 1 recites “the number of groups of concave parts” and “the number of groups of convex parts”, however it is unclear what “a group” encompasses.

Claim 1 recites “wherein the said groups of concave and convex parts are adjacent and closest to groups of convex parts” and “wherein the said concave and convex parts are adjacent and closest to groups of concave parts”, which is confusing and contradictory. It is unclear how the groups of concave and convex parts are adjacent and closest to both groups of convex parts and groups of concave parts. Note the latter phrase cited above does not state “wherein the said groups of”.

Claim 1 recites “are tilted in one direction in an increasing amount according to the closeness to the edges of the concave and convex parts”, which is confusing. It is unclear how the *walls* of the concave and convex parts are tilted according to the closeness to the *edges* of the concave and convex parts. See also Claims 4 and 7.

Claim 5 recites “wherein the concave and convex parts are arranged in alternating columns of plural concave parts or groups of convex parts and columns of plural concave parts or groups of convex parts”, which is not clear and concise. It is unclear what constitutes a “column of plural concave parts” and how an alternating arrangement is achieved. It is unclear how the columns “are arranged . . . parallel . . . with respect to a longitudinal direction of the electrode” and “define an angle of about 30 to 60 degrees with respect to a longitudinal direction of the electrode”.

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Note in claim 9 "perpendicular to the direction of a spiral" is interpreted as a concave or concave part which extends perpendicular to an axial direction of a spiral wound electrode.

\*\* To the extent the claims are understood in view of the 35 U.S.C. 112 rejections above, note the following prior art rejections.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawano et al., WO 99/63608.

Kawano teaches a metal sheet which constitutes a non-sintered electrode support processed to have minute irregularities on its surface. The irregularities comprise protrusions (convex parts) and indentations (concave parts). See abstract. The protrusions and indentations have a center-to-center pitch (P) in the range of from 50-300  $\mu\text{m}$  (Figure 2). The center-to-center P is preferably in the range of 100-200  $\mu\text{m}$  (page 7, line 1). Kawano has a specific teaching of a P of 100  $\mu\text{m}$  (page 12, line 19 and Figure 3). The electrode support is pasted/coated with active material (page 14, lines 1-13). Thus, Kawano teaches that a majority of the active material is within 150  $\mu\text{m}$  of the electrode support (Kawano teaches the active material is within 100  $\mu\text{m}$  of the electrode support). Thus, claim 10 is anticipated.

Figure 5 of Kawano shows an electrode support having a three dimensional structure with multiple protrusions 9 (convex parts) and indentations 8 (concave parts). The number of

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indentations is more than half the number of protrusions. The indentations and protrusions are adjacent and the closest parts to the indentations are protrusions. The number of protrusions is greater than half the number of indentations. The indentations and protrusions are adjacent and the closest parts to the protrusions are indentations. Figures 2A and 2B show contoured walls of the protrusions and indentations. Thus, claim 1 is anticipated. The electrode support may be constructed of a punched metal or a non-punched metal sheet and is preferably made of nickel, steel or nickel-plated steel. The protrusions and indentations should preferably be formed in a tapered shape such as conical shape, but may also be formed in hemispheric shape. See page 6, lines 17-31. The arrangement of the protrusions and indentations may be such that they are formed alternately in one direction or in both longitudinal and transverse directions (page 7, lines 12-15). The electrode support may be pasted with nickel hydroxide or cobalt oxide (page 8, lines 10-25). Thus, claims 2-7 are anticipated. Note page 9, lines 10-28 and Figure 6. The positive electrode is adjacent a polypropylene (resin) separator (page 14, lines 19-29). Thus, claim 8 is anticipated.

Since the electrode supports of the claimed invention and the prior art (Kawano) are the same, the electrode support of Kawano would inherently have in inclination of the protrusions and indentations that is perpendicular to the direction of a spiral when the electrode support is formed in a spiral shape. Thus, claim 9 is anticipated.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tracy Dove whose telephone number is (703) 308-8821. The Examiner may normally be reached Monday-Thursday (9:00 AM-7:30 PM). My supervisor is



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Pat Ryan, who can be reached at (703) 308-2383. The Art Unit receptionist can be reached at (703) 308-0661 and the official fax numbers are 703-872-9310 (after non-final) and 703-872-9311 (after final).

April 29, 2003

  
**Patrick Ryan**  
**Supervisory Patent Examiner**  
**Technology Center 1700**